

5 CLAIMS

1. A high concentration silica slurry, comprising:

a silica powder dispersed in an solvent,

said silica slurry having a silica concentration of more than 50 % by weight and a viscosity of less than 1000 mPa·s,

10 wherein said silica powder has a ratio DL/DT of less than 1.3, wherein DL is an average particle size of the silica powder measured by a laser diffraction particle size distribution method and DT is an average primary particle size of the silica powder measured by a TEM photography observation, and

15 wherein said silica powder has an average primary particle size of from 0.08 μ m to 0.8 μ m.

2. The high concentration silica slurry according to Claim 1, wherein the silica concentration is from more than 70 % by weight to less than 80 % by weight and the viscosity is less than 800 mPa·s at the time of preparing.

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3. The high concentration silica slurry according to Claim 1, wherein a ratio B/A is less than 1.5, wherein A is the viscosity of the slurry measured at the time of preparing and B is the viscosity after one month.

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4. The high concentration silica slurry according to Claim 1, wherein impurity concentrations of said silica powder are less than 1.0 ppm of each of sodium and potassium, less than 1.0 ppm of aluminum, and less than 5 ppm of each of sulfur, nickel, chromium, and iron.

5 5. The high concentration silica slurry according to Claim 1, wherein said solvent is water.

6. The high concentration silica slurry according to Claim 1, wherein at least two silica powders with different particle sizes are used.

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7. A polishing composite, comprising:
the high concentration silica slurry according to Claim 1.

8. The polishing composite according to Claim 7, wherein the silica
15 concentration is from more than 70 % by weight to less than 80 % by weight and the viscosity is less than 800 mPa·s at the time of preparing.

9. The polishing composite according to Claim 7, wherein a ratio B/A is less than 1.5, wherein A is the viscosity of the slurry measured at the time of preparing and B
20 is the viscosity after one month.

10. The polishing composite according to Claim 7, wherein the impurity concentrations of said silica powder are less than 1.0 ppm of each of sodium and potassium, less than 1.0 ppm of aluminum, and less than 5 ppm of each of sulfur, nickel,
25 chromium, and iron.

11. The polishing composite according to Claim 7, wherein said solvent is water.

12. The polishing composite according to Claim 7, wherein at least two silica

5 powders with different particle sizes are used.

13. A process for polishing a substrate, comprising:
contacting the surface of said substrate with the slurry according to Claim 1.

10 14. The process according to Claim 13, wherein said substrate is a silicon wafer.

15 15. The process according to Claim 13, wherein the silica concentration is from
more than 70 % by weight to less than 80 % by weight and the viscosity is less than 800
mPa·s at the time of preparing.

16. The process according to Claim 13, wherein a ratio B/A is less than 1.5,
wherein A is the viscosity of the slurry measured at the time of preparing and B is the
viscosity after one month.

20 17. The process according to Claim 13, wherein impurity concentrations of said
silica powder are less than 1.0 ppm of each of sodium and potassium, less than 1.0 ppm of
aluminum, and less than 5 ppm of each of sulfur, nickel, chromium, and iron.

18. The process according to Claim 13, wherein said solvent is water.

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19. The process according to Claim 13, wherein at least two silica powders with
different particle sizes are used.

20. The process according to Claim 13, wherein said substrate is a

5 semiconductor material.